

PN7071



Pressure sensor with display

PN-250-SER14-QFRKG/US/ IV



Product characteristics

| | | | |
|------------------------------|---|--------------|------------|
| Number of inputs and outputs | Number of digital outputs: 2 | | |
| Measuring range | 0...250 bar | 0...3620 psi | 0...25 MPa |
| Process connection | threaded connection G 1/4 internal thread | | |

Application

| | | | |
|-------------------------|-----------------------------|-----------|---------|
| Special feature | Gold-plated contacts | | |
| Measuring element | metallic thin film cell | | |
| Application | for industrial applications | | |
| Media | liquids and gases | | |
| Medium temperature [°C] | -25...80 | | |
| Min. burst pressure | 1100 bar | 15950 psi | 110 MPa |
| Pressure rating | 500 bar | 7250 psi | 50 MPa |
| Vacuum resistance | -1000 mbar | -0.1 MPa | |
| Type of pressure | relative pressure | | |

Electrical data

| | | | |
|---------------------------------|----------------------------|--|--|
| Operating voltage [V] | 18...30 DC; (to SELV/PELV) | | |
| Current consumption [mA] | < 35 | | |
| Min. insulation resistance [MΩ] | 100; (500 V DC) | | |
| Protection class | III | | |
| Reverse polarity protection | yes | | |
| Power-on delay time [s] | < 0.3 | | |
| Integrated watchdog | yes | | |

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| Inputs / outputs | | | |
|---|---|---------------|----------------|
| Number of inputs and outputs | Number of digital outputs: 2 | | |
| Outputs | | | |
| Total number of outputs | 2 | | |
| Output signal | switching signal; IO-Link; (configurable) | | |
| Electrical design | PNP/NPN | | |
| Number of digital outputs | 2 | | |
| Output function | normally open / normally closed; (parameterisable) | | |
| Max. voltage drop switching output DC [V] | 2.5 | | |
| Permanent current rating of switching output DC [mA] | 150; (200 (...60 °C) 250 (...40 °C)) | | |
| Switching frequency DC [Hz] | < 170 | | |
| Short-circuit protection | yes | | |
| Type of short-circuit protection | pulsed | | |
| Overload protection | yes | | |
| Measuring/setting range | | | |
| Measuring range | 0...250 bar | 0...3620 psi | 0...25 MPa |
| Factory setting / CMPT = 2 | | | |
| Set point SP | 2...250 bar | 40...3620 psi | 0.2...25 MPa |
| Reset point rP | 1...249 bar | 20...3600 psi | 0.1...24.9 MPa |
| Min. difference between SP and rP | 2 bar | 20 psi | 0.2 MPa |
| In steps of | 1 bar | 20 psi | 0.1 MPa |
| Status_B High Resolution / CMPT = 3 | | | |
| Set point SP | 2...250 bar | 30...3626 psi | 0.2...25 MPa |
| Reset point rP | 1...249 bar | 12...3608 psi | 0.1...24.9 MPa |
| Min. difference between SP and rP | 2 bar | 19 psi | 0.2 MPa |
| In steps of | 1 bar | 1 psi | 0.1 MPa |
| Accuracy / deviations | | | |
| Switch point accuracy [% of the span] | < ± 0,5 | | |
| Repeatability [% of the span] | < ± 0,1; (with temperature fluctuations < 10 K) | | |
| Characteristics deviation [% of the span] | < ± 0,25 (BFSL) / < ± 0,5 (LS); (BFSL = Best Fit Straight Line; LS = limit value setting) | | |
| Hysteresis deviation [% of the span] | < ± 0,25 | | |
| Long-term stability [% of the span] | < ± 0,05; (per 6 months) | | |
| Temperature coefficient zero point [% of the span / 10 K] | 0,2; (-25...80 °C) | | |
| Temperature coefficient span [% of the span / 10 K] | 0,2; (-25...80 °C) | | |

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| Response times | | | | | | | | | | |
|-------------------------------------|--|------------------------------|------------|----------------------------|-----|-------------------------------------|-----|------------------------------|---|--|
| Response time | [ms] | < 3 | | | | | | | | |
| Delay time programmable dS, dr | [s] | 0...50 | | | | | | | | |
| Software / programming | | | | | | | | | | |
| Parameter setting options | hysteresis / window; normally open / normally closed; switching logic; switch-on/switch-off delay; Damping; Display unit | | | | | | | | | |
| Interfaces | | | | | | | | | | |
| Communication interface | IO-Link | | | | | | | | | |
| Transmission type | COM2 (38,4 kBaud) | | | | | | | | | |
| IO-Link revision | 1.1 | | | | | | | | | |
| SDCI standard | IEC 61131-9 | | | | | | | | | |
| SIO mode | yes | | | | | | | | | |
| Required master port type | A; (when pin 2 not connected: B) | | | | | | | | | |
| Process data analogue | 1 | | | | | | | | | |
| Process data binary | 2 | | | | | | | | | |
| Supported DeviceIDs | <table border="1"> <thead> <tr> <th>Type of operation</th> <th>DeviceID</th> </tr> </thead> <tbody> <tr> <td>Factory setting / CMPT = 2</td> <td>400</td> </tr> <tr> <td>Status_B High Resolution / CMPT = 3</td> <td>598</td> </tr> </tbody> </table> | Type of operation | DeviceID | Factory setting / CMPT = 2 | 400 | Status_B High Resolution / CMPT = 3 | 598 | | | |
| Type of operation | DeviceID | | | | | | | | | |
| Factory setting / CMPT = 2 | 400 | | | | | | | | | |
| Status_B High Resolution / CMPT = 3 | 598 | | | | | | | | | |
| Note | For further information please see the IODD PDF file under "Downloads" | | | | | | | | | |
| Factory setting / CMPT = 2 | | | | | | | | | | |
| Profiles | Smart Sensor - SSP 0 | Generic Profiled Sensor | | | | | | | | |
| | Function | Device identification | | | | | | | | |
| | Function | Process data variable | | | | | | | | |
| | Function | Device diagnosis | | | | | | | | |
| Min. process cycle time | [ms] | 2.3 | | | | | | | | |
| IO-Link resolution pressure | 1 bar | 0.1 MPa | | | | | | | | |
| IO-Link process data (cyclical) | <table border="1"> <thead> <tr> <th>function</th> <th>bit length</th> </tr> </thead> <tbody> <tr> <td>pressure</td> <td>14</td> </tr> <tr> <td>binary switching information</td> <td>2</td> </tr> </tbody> </table> | function | bit length | pressure | 14 | binary switching information | 2 | | | |
| function | bit length | | | | | | | | | |
| pressure | 14 | | | | | | | | | |
| binary switching information | 2 | | | | | | | | | |
| IO-Link functions (acyclical) | application specific tag | | | | | | | | | |
| Status_B High Resolution / CMPT = 3 | | | | | | | | | | |
| Profiles | Smart Sensor - SSP 3.1 | Measuring Sensor | | | | | | | | |
| | Common - I&D | Identification and Diagnosis | | | | | | | | |
| Min. process cycle time | [ms] | 3 | | | | | | | | |
| IO-Link resolution pressure | 0.1 bar | 0.01 MPa | | | | | | | | |
| IO-Link process data (cyclical) | <table border="1"> <thead> <tr> <th>function</th> <th>bit length</th> </tr> </thead> <tbody> <tr> <td>pressure</td> <td>16</td> </tr> <tr> <td>device status</td> <td>4</td> </tr> <tr> <td>binary switching information</td> <td>2</td> </tr> </tbody> </table> | function | bit length | pressure | 16 | device status | 4 | binary switching information | 2 | |
| function | bit length | | | | | | | | | |
| pressure | 16 | | | | | | | | | |
| device status | 4 | | | | | | | | | |
| binary switching information | 2 | | | | | | | | | |
| IO-Link functions (acyclical) | application specific tag | | | | | | | | | |
| Operating conditions | | | | | | | | | | |
| Ambient temperature | [°C] | -25...80 | | | | | | | | |
| Storage temperature | [°C] | -40...100 | | | | | | | | |
| Protection | IP 65; IP 67 | | | | | | | | | |

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| Tests / approvals | | |
|--|--|---|
| EMC | DIN EN 61000-6-2 | |
| | DIN EN 61000-6-3 | |
| Shock resistance | DIN EN 60068-2-27 | 50 g (11 ms) |
| Vibration resistance | DIN EN 60068-2-6 | 20 g (10...2000 Hz) |
| MTTF [years] | 214 | |
| UL approval | UL approval no. | J003 |
| Pressure Equipment Directive | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request | |
| Mechanical data | | |
| Weight [g] | 239.2 | |
| Housing | cylindrical | |
| Dimensions [mm] | Ø 34 / L = 90.7 | |
| Materials | stainless steel (630/1.4542/17-4 PH); stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC | |
| Materials (wetted parts) | stainless steel (630/1.4542/17-4 PH) | |
| Min. pressure cycles | 100 million | |
| Tightening torque [Nm] | 25...35; (recommended tightening torque; depends on the lubrication, the seal and the pressure load) | |
| Process connection | threaded connection G 1/4 internal thread | |
| Restrictor element integrated | no (can be retrofitted) | |
| Displays / operating elements | | |
| Display | Display unit | 3 x LED, green (bar, psi, MPa) |
| | switching status | 2 x LED, yellow |
| | measured values | alphanumeric display, red/green 4-digit |
| Remarks | | |
| Pack quantity | 1 pcs. | |
| Electrical connection | | |
| Connector: 1 x M12; coding: A; Contacts: gold-plated | | |
| | | |

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Connection



OUT1 switching output

IO-Link

OUT2 switching output

colours to DIN EN 60947-5-2

Core colours :

BK = black

BN = brown

BU = blue

WH = white